

## **AMENDMENT TO CLAIMS 1-16**

This listing of claims replaces all prior versions and listings of claims in the application:

### **LISTING OF CLAIMS**

1. (twice amended) A saccadic-motion detection device comprised of an optical system for focusing light reflected and/or emitted from a subject's eye directly onto an optical navigation chip said optical navigation chip comprised of a solid state semiconductor whereby the solid state semiconductor contains a photo sensitive imaging array which is capable of in a first instance recording the focusing light reflected and/or emitted from a subject's eye and capable of measuring saccadic eye movements.
2. (twice amended) The optical navigation chip in claim 1 directly converts the incident light into digital representations of the movement or position of the eye, or both;
3. (previously amended) The saccadic-motion detection device ~~detector~~ of claim 1 can be configured to determine the rate of movement of the eye;
4. (previously amended) The saccadic-motion detection device ~~detector~~ of claim 1 can be configured to determine the angular position, speed, and/or acceleration of the eye;
5. (previously amended) The saccadic-motion detection device ~~detector~~ of claim 4 can be configured to compare the value of position, speed, and/or acceleration with a table associating known or standard conditions to those values determined from the subject's eye;
6. (previously amended) The saccadic-motion detection device ~~detector~~ of claim 4, wherein the condition can be reported among known conditions for normal or impaired conditions, due to at least one of intoxication, fatigue, dementia, delirium, psychosis, attention deficit, hyperactivity, depression, or mania;
7. (previously amended) The saccadic-motion detection device ~~detector~~ of claim 6, wherein the condition of intoxication can be determined that is caused by drugs, such as benzodiazepines, ethanol (alcohol) , barbiturates, narcotics, narcotic mixtures, and amphetamines;
8. (previously amended) The saccadic-motion detection device ~~detector~~ of claim 1

- wherein the optical navigation chip is configured with the capability to provide position or motion information at greater than 1200 times per second;
9. (previously amended) The saccadic-motion detection device ~~detector~~ of claim 1 wherein the optical navigation chip is configured with the capability to provide position or motion information at between about 1200 and about 6000 times per second;
10. (twice amended) The saccadic-motion detection device ~~detector~~ of claim 1 wherein a handheld mechanical frame is attached to the optical system ~~apparatus~~ and the optical navigation chip so as to be grasped by hand;
11. (previously amended) The saccadic-motion detection device ~~detector~~ of claim 1 wherein a source of light, said source of light being outside the visible spectrum for humans, is attached and configured to the subject's eye so the reflected light is received by the optical system ~~apparatus~~;
12. Cancelled
13. (previously amended) The saccadic-motion detection device ~~detector~~ of claim 1 wherein the optical navigation chip contains an array of charge coupled devices (CCDs);
14. (previously amended) The saccadic-motion detection device ~~detector~~ of claim 1 wherein the subjects are creatures capable of saccadic eye motion, which includes humans and other animals;
15. (twice amended) A system for detecting saccadic eye movements comprised of a motion transducer using an optical apparatus configured to focus light received from a subject's eye, which then provides at least one direct indication of saccadic eye motion over a discrete interval of time at a discrete point in time and/or motion at different times;
16. (previously amended) The system of claim 15 that includes a light source to illuminate the subject's eye, and a housing for the light source, a motion transducer, and an optical apparatus, and a handheld housing, ~~which can include a hand grip~~, so that the entire device is readily portable;